

SEQUENCE LISTING

<110> DIXON, JANE
MCKINNON, DAVID

<120> Mammalian elk Potassium Channel Genes

<130> 08874138PC1

<140>

<141>

<160> 16

<170> PatentIn Ver. 2.1

<210> 1

<211> 3742

<212> DNA

<213> RAT

<220>

<223> elk1

<400> 1

cgggatcctt	gtggacaaac	tttgatgggg	aatttcacac	agcgctggaa	aaatgccggt	60
tatgaaagga	ttgctggcgc	cacagaacac	cttcctggac	actattgcc	cccgtttcga	120
cggaacacat	agcaacttca	tccctggccaa	tgcccaagt	gcaaaagggt	tcccatagat	180
ctactgttca	gatggcttct	gtgagctggc	tgggtttgct	cgaactgaag	tcatgcagaa	240
gagttgcagc	tgcaagtttc	tgtttggggt	ggagaccaac	gagcagctga	tgcttcagat	300
cgaaaagtcc	ctggaggaga	aggtagagtt	caaaggagaa	attatgttct	acaagaagaa	360
tggggctcca	ttttggtgcc	tggtggatat	cgttcctata	aagaatgaga	aaggagatgt	420
ggtccttttc	ctggcctcat	tcaaagatat	aacagacacg	aaagtgaaga	ttacttcaga	480
agataaaaaa	gaagacagag	ccaaaggaag	atcaagagca	gggagccact	tcgactcagc	540
ccgcagacgg	agccgagcag	tcccttatca	catctcagga	cacctgcaa	gaagagaaaa	600
gaacaaattg	aaaataaata	ataacgtgtt	tgtagataaa	ccggcgtttc	cagagtataa	660
ggtttccgat	gcaaaaaagt	ccaagttcat	cctgctgcac	ttcagcactt	ttaaagctgg	720
ctgggactgg	ctcattttgc	tggcaacgtt	ttatgttgct	gtgacagtcc	cttacaacgt	780
gtgcttcatt	ggcaatgagg	atctgtccac	aactcggagc	acaacgggtc	gtgacatcgc	840
tgtggagatt	ctcttcatta	tagatattat	tctaaatttc	cgaacaactt	atgtcagcaa	900
gtctggccaa	gttatctttg	aagcgagatc	catttgcac	cactacgtca	ccacctgggt	960
catcattgat	ctgattgctg	ccctgccctt	tgacctcctg	tatgctttca	atgtcacagt	1020
ggtgtccctc	gtacatcttc	tgaagactgt	tcggctgctc	cgtcttttgc	gcctcctgca	1080
gaagctggac	cgttattctc	agcacagcac	aattgtcctc	accctgctca	tgtccatggt	1140
tgctctcctt	gcacactgga	tggcatgtat	ctgggtatgtc	attggaaaaa	tggagagggg	1200
ggacaacagc	cttctcaagt	gggaagtccg	ttggcttcac	gagctgggaa	agagactgga	1260
atctccgtac	tacggcaaca	acacgctggg	cggcccgtcc	atccgcagtg	cctatatcgc	1320
agccttgtag	ttcactctca	gcagcctcac	cagcgtggga	tttggaatg	tgtccgctaa	1380
cacggatgca	gagaagatct	tctccatctg	taccatgttg	attggagccc	tgatgcagtc	1440
cttgggtattt	gggaatgtga	ctgccatcat	acagagaatg	tactctagat	ggagcctgta	1500
ccatactaga	accaaggacc	taaaggactt	catccgtgtg	catcacctgc	cccagcaact	1560
caagcagagg	atgcttgagt	actttcagac	aacttggctc	gtcaacaatg	gaatagattc	1620
aaatgagctt	ttgaaagact	ttccagatga	gctgcgctct	gacatcacia	tgcatctgaa	1680
caaggagatc	ttacagctgt	ccctgtttga	atgtgctagc	cggggctgcc	tcagggtctct	1740
gtctctccat	attaaaaact	cattctgtgc	cccaggagag	tatctgctgc	gccagggaga	1800
tgcgttgtag	gccatctact	togtgtgctc	aggctctatg	gaggttctta	aagacagcat	1860
ggtgttggtc	attctagggg	agggggatgt	aattggagca	aatttatcaa	ttaaagacca	1920

```

agtgatcaag accaacgctg acgtgaaggc tctgacctac tgtgatctac agtgcacat 1980
cctgaaagggt ctcttttgagg tgctgggcct ttacccagag tacgcacaca aattcgtaga 2040
agacatccgc acgacctcac atacaacctt cgagaagggt atgagagtga tgtaatatca 2100
agattatcga acaaattctac agtcccacag gcagagccca aggggaatgg aagcatcaag 2160
aagagactcc catccattgt ggaagatgag gaagaggagg aagtggagga agaggagacc 2220
acctcccttt ctcccatcta cacaagggga tcctctgttt cacacagcaa aaagactgga 2280
agcagtaaga gctatctagg tttgagctta aagcaactga cctcaggaac agttccattc 2340
cactcaccta tcagagtctc cagtgccaac tcccctaaaa ccaagcagga agctgaccca 2400
cctaaccatg gcacacggaa agagaagaat ctgaaagtgc agctotgcag cctgggtact 2460
gctggaaccc cagagctcag tccgaggatt gtcgatggaa ttgaagatgg caacagcagt 2520
gaggaaactc agacttttga ttttggtctt gaacaaatca ggccagagcc caggatttcc 2580
ccttcccttg gagaatcaga gattggagct gcgtttctgt tcatcaaggc tgaagaaacc 2640
aagcagcaga taaacaagct caacagtgag gtcacaacat tgactcagga ggtctcccag 2700
ctagggaaag atatgagaag catcatgcaa cttctggaaa acatcttgtc acctcagcag 2760
ccatcacaaat tttgttctct gcatccctact tcaatctgtc cttccagaga aagtttccag 2820
actagggtga gctggagtgc tcaccagcct tgcctacact tgcaggcaaa tggagcacat 2880
ctttaccatg gcaatgtcac ctctgacatc tggagtgtcg acccctcctt ggtgggcagc 2940
aaccctcaac gaactgaagc tcatgagcaa agtccagtag atagtgaact gcatcattct 3000
ccaaacctgg cttattcccc ctctcactgc caggttatcc aagaaggcca cttgcagttc 3060
ctaagggtgca tctccctca ttcagatacc aactgacac ctttgcagtc catctcagcc 3120
actctctcat cctctgtgtg ctctcatca gaaacatcct tgcacctcgt tctcccaagt 3180
aggtcagagg agggcagcat cactcatgga cctgtgagtt ctttcagttt ggaaaactta 3240
ccaggatctt gggaccgaga aggaatgatg tcagcctcta cagaaccctt ggagaacttt 3300
ccagtagaag ttgtcacaag cacagcggat gtaaaagaca gcaaagccat aaacgtataa 3360
tatcagcaca taagggcagc tttcaatgcc aaatccactg ctgcatgaca gctctagttt 3420
gcctttgtgg cttctagcag gtgtggagcc tgagcaaagt taggaattct gcaggaaaga 3480
gggcaagggg ccagtaaaaag gcagagccac ctctatactg tagcaaacaa tttctagatc 3540
gtagaagcat aaaacctttt ctgtacaggt attaacttac tggctctgatt gacagacttt 3600
ggtaacaatc ctatgacca gaggggtctga gcagatagaa accccagaca aagagtttgg 3660
ggattagttt tgtcataagt ggattttttt gtgaagtgcg gcaaagggtt tttttcctga 3720
gtgcctgggt gtcattcctg aa

```

<210> 2
 <211> 1102
 <212> PRT
 <213> RAT

<220>
 <223> elk1

<400> 2
 Met Pro Val Met Lys Gly Leu Leu Ala Pro Gln Asn Thr Phe Leu Asp
 1 5 10 15
 Thr Ile Ala Thr Arg Phe Asp Gly Thr His Ser Asn Phe Ile Leu Ala
 20 25 30
 Asn Ala Gln Val Ala Lys Gly Phe Pro Ile Val Tyr Cys Ser Asp Gly
 35 40 45
 Phe Cys Glu Leu Ala Gly Phe Ala Arg Thr Glu Val Met Gln Lys Ser
 50 55 60
 Cys Ser Cys Lys Phe Leu Phe Gly Val Glu Thr Asn Glu Gln Leu Met
 65 70 75 80

Leu	Gln	Ile	Glu	Lys	Ser	Leu	Glu	Glu	Lys	Val	Glu	Phe	Lys	Gly	Glu	
				85					90							
Ile	Met	Phe	Tyr	Lys	Lys	Asn	Gly	Ala	Pro	Phe	Trp	Cys	Leu	Leu	Asp	
				100					105							
Ile	Val	Pro	Ile	Lys	Asn	Glu	Lys	Gly	Asp	Val	Val	Leu	Phe	Leu	Ala	
				115					120							
Ser	Phe	Lys	Asp	Ile	Thr	Asp	Thr	Lys	Val	Lys	Ile	Thr	Ser	Glu	Asp	
				130					135							
Lys	Lys	Glu	Asp	Arg	Ala	Lys	Gly	Arg	Ser	Arg	Ala	Gly	Ser	His	Phe	
				145					150							
Asp	Ser	Ala	Arg	Arg	Arg	Ser	Arg	Ala	Val	Leu	Tyr	His	Ile	Ser	Gly	
				165					170							
His	Leu	Gln	Arg	Arg	Glu	Lys	Asn	Lys	Leu	Lys	Ile	Asn	Asn	Asn	Val	
				180					185							
Phe	Val	Asp	Lys	Pro	Ala	Phe	Pro	Glu	Tyr	Lys	Val	Ser	Asp	Ala	Lys	
				195					200							
Lys	Ser	Lys	Phe	Ile	Leu	Leu	His	Phe	Ser	Thr	Phe	Lys	Ala	Gly	Trp	
				210					215							
Asp	Trp	Leu	Ile	Leu	Leu	Ala	Thr	Phe	Tyr	Val	Ala	Val	Thr	Val	Pro	
				225					230							
Tyr	Asn	Val	Cys	Phe	Ile	Gly	Asn	Glu	Asp	Leu	Ser	Thr	Thr	Arg	Ser	
				245					250							
Thr	Thr	Val	Ser	Asp	Ile	Ala	Val	Glu	Ile	Leu	Phe	Ile	Ile	Asp	Ile	
				260					265							
Ile	Leu	Asn	Phe	Arg	Thr	Thr	Tyr	Val	Ser	Lys	Ser	Gly	Gln	Val	Ile	
				275					280							
Phe	Glu	Ala	Arg	Ser	Ile	Cys	Ile	His	Tyr	Val	Thr	Thr	Trp	Phe	Ile	
				290					295							
Ile	Asp	Leu	Ile	Ala	Ala	Leu	Pro	Phe	Asp	Leu	Leu	Tyr	Ala	Phe	Asn	
				305					310							
Val	Thr	Val	Val	Ser	Leu	Val	His	Leu	Leu	Lys	Thr	Val	Arg	Leu	Leu	
				325					330							
Arg	Leu	Leu	Arg	Leu	Leu	Gln	Lys	Leu	Asp	Arg	Tyr	Ser	Gln	His	Ser	
				340					345							
Thr	Ile	Val	Leu	Thr	Leu	Leu	Met	Ser	Met	Phe	Ala	Leu	Leu	Ala	His	
				355					360							
Trp	Met	Ala	Cys	Ile	Trp	Tyr	Val	Ile	Gly	Lys	Met	Glu	Arg	Glu	Asp	
				370					375							

Asn	Ser	Leu	Leu	Lys	Trp	Glu	Val	Gly	Trp	Leu	His	Glu	Leu	Gly	Lys	385	390	395	400
Arg	Leu	Glu	Ser	Pro	Tyr	Tyr	Gly	Asn	Asn	Thr	Leu	Gly	Gly	Pro	Ser	405	410	415	
Ile	Arg	Ser	Ala	Tyr	Ile	Ala	Ala	Leu	Tyr	Phe	Thr	Leu	Ser	Ser	Leu	420	425	430	
Thr	Ser	Val	Gly	Phe	Gly	Asn	Val	Ser	Ala	Asn	Thr	Asp	Ala	Glu	Lys	435	440	445	
Ile	Phe	Ser	Ile	Cys	Thr	Met	Leu	Ile	Gly	Ala	Leu	Met	His	Ala	Leu	450	455	460	
Val	Phe	Gly	Asn	Val	Thr	Ala	Ile	Ile	Gln	Arg	Met	Tyr	Ser	Arg	Trp	465	470	475	480
Ser	Leu	Tyr	His	Thr	Arg	Thr	Lys	Asp	Leu	Lys	Asp	Phe	Ile	Arg	Val	485	490	495	
His	His	Leu	Pro	Gln	Gln	Leu	Lys	Gln	Arg	Met	Leu	Glu	Tyr	Phe	Gln	500	505	510	
Thr	Thr	Trp	Ser	Val	Asn	Asn	Gly	Ile	Asp	Ser	Asn	Glu	Leu	Leu	Lys	515	520	525	
Asp	Phe	Pro	Asp	Glu	Leu	Arg	Ser	Asp	Ile	Thr	Met	His	Leu	Asn	Lys	530	535	540	
Glu	Ile	Leu	Gln	Leu	Ser	Leu	Phe	Glu	Cys	Ala	Ser	Arg	Gly	Cys	Leu	545	550	555	560
Arg	Ser	Leu	Ser	Leu	His	Ile	Lys	Thr	Ser	Phe	Cys	Ala	Pro	Gly	Glu	565	570	575	
Tyr	Leu	Leu	Arg	Gln	Gly	Asp	Ala	Leu	Gln	Ala	Ile	Tyr	Phe	Val	Cys	580	585	590	
Ser	Gly	Ser	Met	Glu	Val	Leu	Lys	Asp	Ser	Met	Val	Leu	Ala	Ile	Leu	595	600	605	
Gly	Lys	Gly	Asp	Leu	Ile	Gly	Ala	Asn	Leu	Ser	Ile	Lys	Asp	Gln	Val	610	615	620	
Ile	Lys	Thr	Asn	Ala	Asp	Val	Lys	Ala	Leu	Thr	Tyr	Cys	Asp	Leu	Gln	625	630	635	640
Cys	Ile	Ile	Leu	Lys	Gly	Leu	Phe	Glu	Val	Leu	Gly	Leu	Tyr	Pro	Glu	645	650	655	
Tyr	Ala	His	Lys	Phe	Val	Glu	Asp	Ile	Gln	His	Asp	Leu	Thr	Tyr	Asn	660	665	670	
Leu	Arg	Glu	Gly	His	Glu	Ser	Asp	Val	Ile	Ser	Arg	Leu	Ser	Asn	Lys	675	680	685	

Ser	Thr	Val	Pro	Gln	Ala	Glu	Pro	Lys	Gly	Asn	Gly	Ser	Ile	Lys	Lys	690	695	700
Arg	Leu	Pro	Ser	Ile	Val	Glu	Asp	Glu	Glu	Glu	Glu	Glu	Val	Glu	Glu	705	710	715
Glu	Glu	Thr	Thr	Ser	Leu	Ser	Pro	Ile	Tyr	Thr	Arg	Gly	Ser	Ser	Val	725	730	735
Ser	His	Ser	Lys	Lys	Thr	Gly	Ser	Ser	Lys	Ser	Tyr	Leu	Gly	Leu	Ser	740	745	750
Leu	Lys	Gln	Leu	Thr	Ser	Gly	Thr	Val	Pro	Phe	His	Ser	Pro	Ile	Arg	755	760	765
Val	Ser	Ser	Ala	Asn	Ser	Pro	Lys	Thr	Lys	Gln	Glu	Ala	Asp	Pro	Pro	770	775	780
Asn	His	Gly	Thr	Arg	Lys	Glu	Lys	Asn	Leu	Lys	Val	Gln	Leu	Cys	Ser	785	790	795
Leu	Gly	Thr	Ala	Gly	Thr	Pro	Glu	Leu	Ser	Pro	Arg	Ile	Val	Asp	Gly	805	810	815
Ile	Glu	Asp	Gly	Asn	Ser	Ser	Glu	Glu	Thr	Gln	Thr	Phe	Asp	Phe	Gly	820	825	830
Ser	Glu	Gln	Ile	Arg	Pro	Glu	Pro	Arg	Ile	Ser	Pro	Ser	Leu	Gly	Glu	835	840	845
Ser	Glu	Ile	Gly	Ala	Ala	Phe	Leu	Phe	Ile	Lys	Ala	Glu	Glu	Thr	Lys	850	855	860
Gln	Gln	Ile	Asn	Lys	Leu	Asn	Ser	Glu	Val	Thr	Thr	Leu	Thr	Gln	Glu	865	870	875
Val	Ser	Gln	Leu	Gly	Lys	Asp	Met	Arg	Ser	Ile	Met	Gln	Leu	Leu	Glu	885	890	895
Asn	Ile	Leu	Ser	Pro	Gln	Gln	Pro	Ser	Gln	Phe	Cys	Ser	Leu	His	Pro	900	905	910
Thr	Ser	Ile	Cys	Pro	Ser	Arg	Glu	Ser	Phe	Gln	Thr	Arg	Val	Ser	Trp	915	920	925
Ser	Ala	His	Gln	Pro	Cys	Leu	His	Leu	Gln	Ala	Asn	Gly	Ala	His	Leu	930	935	940
Tyr	His	Gly	Asn	Val	Thr	Ser	Asp	Ile	Trp	Ser	Val	Asp	Pro	Ser	Leu	945	950	955
Val	Gly	Ser	Asn	Pro	Gln	Arg	Thr	Glu	Ala	His	Glu	Gln	Ser	Pro	Val	965	970	975
Asp	Ser	Glu	Leu	His	His	Ser	Pro	Asn	Leu	Ala	Tyr	Ser	Pro	Ser	His	980	985	990

Cys Gln Val Ile Gln Glu Gly His Leu Gln Phe Leu Arg Cys Ile Ser
995 1000 1005

Pro His Ser Asp Thr Thr Leu Thr Pro Leu Gln Ser Ile Ser Ala Thr
1010 1015 1020

Leu Ser Ser Ser Val Cys Ser Ser Ser Glu Thr Ser Leu His Leu Val
1025 1030 1035 1040

Leu Pro Ser Arg Ser Glu Glu Gly Ser Ile Thr His Gly Pro Val Ser
1045 1050 1055

Ser Phe Ser Leu Glu Asn Leu Pro Gly Ser Trp Asp Arg Glu Gly Met
1060 1065 1070

Met Ser Ala Ser Thr Glu Pro Leu Glu Asn Phe Pro Val Glu Val Val
1075 1080 1085

Thr Ser Thr Ala Asp Val Lys Asp Ser Lys Ala Ile Asn Val
1090 1095 1100

<210> 3

<211> 154

<212> PRT

<213> RAT

<220>

<223> elk 2

<400> 3

Lys Gly Glu Val Ala Leu Phe Leu Val Ser His Lys Asp Ile Ser Glu
1 5 10 15

Thr Lys Asn Arg Gly Gly Pro Asp Asn Trp Lys Glu Arg Gly Gly Gly
20 25 30

Arg Arg Arg Tyr Gly Arg Ala Gly Ser Lys Gly Phe Asn Ala Asn Arg
35 40 45

Arg Arg Ser Arg Ala Val Leu Tyr His Leu Ser Gly His Leu Gln Lys
50 55 60

Gln Pro Lys Gly Lys His Lys Leu Asn Lys Gly Val Phe Gly Glu Lys
65 70 75 80

Pro Asn Leu Pro Glu Tyr Lys Val Ala Ala Ile Arg Lys Ser Pro Phe
85 90 95

Ile Leu Leu His Cys Gly Ala Leu Arg Ala Thr Trp Asp Gly Phe Ile
100 105 110

Leu Leu Ala Thr Leu Tyr Val Ala Val Thr Val Pro Tyr Ser Val Cys
115 120 125

Val Ser Thr Ala Arg Glu Pro Ser Ala Ala Arg Gly Pro Pro Ser Val
130 135 140

Cys Asp Leu Ala Val Glu Val Leu Phe Ile
145 150

<210> 4
<211> 141
<212> PRT
<213> RAT

<220>
<223> eag 2

<400> 4
Val Ile Leu Ile Leu Thr Phe Tyr Thr Ala Ile Met Val Pro Tyr Asn
1 5 10 15
Val Ser Phe Lys Thr Lys Gln Asn Asn Ile Ala Trp Leu Val Leu Asp
20 25 30
Ser Val Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His
35 40 45
Thr Thr Phe Val Gly Pro Gly Gly Glu Val Ile Ser Asp Pro Lys Leu
50 55 60
Ile Arg Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser
65 70 75 80
Cys Leu Pro Tyr Asp Ile Ile Asn Ala Phe Glu Asn Val Asp Glu Gly
85 90 95
Ile Ser Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu
100 105 110
Gly Arg Val Ala Arg Lys Leu Asp His Tyr Leu Glu Tyr Gly Ala Ala
115 120 125
Val Leu Val Leu Leu Val Cys Val Phe Gly Leu Val Ala
130 135 140

<210> 5
<211> 21
<212> DNA
<213> RAT

<220>
<223> eag

<400> 5
ttyaarrcnr yntgggaytg g

21

<210> 6
<211> 24
<212> DNA

<213> RAT
<220>
<223> eag
<400> 6
rtaccadatr cangcnagcc artg 24

<210> 7
<211> 20
<212> DNA
<213> RAT
<220>
<223> eag
<400> 7
cgggatcctt gtggacaaac 20

<210> 8
<211> 20
<212> DNA
<213> RAT
<220>
<223> eag
<400> 8
cggaccaaca gtaaggactt 20

<210> 9
<211> 21
<212> DNA
<213> RAT
<220>
<223> eag
<400> 9
gtgataccca taaagaatga g 21

<210> 10
<211> 17
<212> DNA
<213> RAT
<220>
<223> eag
<400> 10
ctgtaacacg acttaaa 17

<210> 11
<211> 17
<212> DNA
<213> RAT

<220>
<223> eag

<400> 11
tgctgcggtg agacacg

17

<210> 12
<211> 19
<212> DNA
<213> RAT

<220>
<223> eag

<400> 12
gcgtggtttg tgtactggt

19

<210> 13
<211> 464
<212> DNA
<213> RAT

<220>
<223> elk 2

<400> 13
aagggggagg tggccctctt cctggtctct cacaaggaca tcagtgagac caagaaccga 60
ggaggccctg acaactggaa ggagagaggt ggtggccgac gcagatatgg tcgggcagga 120
tccaaaggct ttaatgcaa tcggaggcgc agccgggcgg ttctctacca cctctctggt 180
cacctgcaga aacaacccaa gggcaagcac aaactcaata aggggtgtgt tggagagaag 240
ccaaatttgc ccgaatataa agtcgctgct atccggaagt caccctttat cctgctgcac 300
tgtgggctc tgagagccac ctgggatggc ttcctcctgc tcgccacgct ctacgtggct 360
gtcactgtgc catacagcgt gtgtgtgagc acagcacggg agcccagtgc tgcccgtggc 420
ccacctagtg tctgtgacct ggccgtggaa gtccctcttca tctt 464

<210> 14
<211> 423
<212> DNA
<213> RAT

<220>
<223> eag 2

<400> 14
gtgattttta ttcttacctt ctacaccgcc atcatggttc cttacaacgt ttccttcaaa 60
acaaaacaga acaatatcgc ctggctgggt ctggacagcg tgggtggacgt tatttttctg 120
gtggacatcg ttttaaactt tcacacgact tttgtggggc cgggtggaga ggtcatttct 180
gacccaaaac tcatacggat gaactatctg aaaacttggg ttgtgattga tctgctgtct 240
tgtttacctt atgacatcat caatgccttt gaaaatgtgg atgaggaat cagcagtctc 300

```

ttcagctctt taaaggtggt acgcctctta cgctgggcc gtgttgctag gaaactggac 360
cattacctgg aatatggagc agcggtcctt gtgctcctgg tatgtgtgtt tggactgggt 420
gcc
423

```

```

<210> 15
<211> 1163
<212> PRT
<213> RAT

```

```

<220>
<223> erg 1

```

```

<400> 15
Met Pro Val Arg Arg Gly His Val Ala Pro Gln Asn Thr Phe Leu Asp
  1          5          10          15

Thr Ile Ile Arg Lys Phe Glu Gly Gln Ser Arg Lys Phe Ile Ile Ala
      20          25          30

Asn Ala Arg Val Glu Asn Cys Ala Val Ile Tyr Cys Asn Asp Gly Phe
      35          40          45

Cys Glu Leu Cys Gly Tyr Ser Arg Ala Glu Val Met Gln Arg Pro Cys
      50          55          60

Thr Cys Asp Phe Leu His Gly Pro Arg Thr Gln Arg Arg Ala Ala Ala
      65          70          75          80

Gln Ile Ala Gln Ala Leu Leu Gly Ala Glu Glu Arg Lys Val Glu Ile
      85          90          95

Ala Phe Tyr Arg Lys Asp Gly Ser Cys Phe Leu Cys Leu Val Asp Val
      100          105          110

Val Pro Val Lys Asn Glu Asp Gly Ala Val Ile Met Phe Ile Leu Asn
      115          120          125

Phe Glu Val Val Met Glu Lys Asp Met Val Gly Ser Pro Ala His Asp
      130          135          140

Thr Asn His Arg Gly Pro Ser Thr Ser Trp Leu Ala Ser Gly Arg Ala
      145          150          155          160

Lys Thr Phe Arg Leu Lys Leu Pro Ala Leu Leu Ala Leu Thr Ala Arg
      165          170          175

Glu Ser Pro Met Arg Thr Gly Ser Thr Gly Ser Pro Gly Ala Pro Gly
      180          185          190

Ala Val Val Val Asp Val Asp Leu Thr Pro Ala Ala Pro Ser Ser Glu
      195          200          205

Ser Leu Ala Leu Asp Glu Val Ser Ala Met Asp Asn His Val Ala Gly
      210          215          220

Leu Gly Pro Ala Glu Glu Arg Arg Ala Leu Val Gly Pro Ala Ser Ala

```

225		230		235		240
Ser Pro Val Ala	Ser Ile Pro Gly Pro His Pro Ser Pro Arg Ala Gln					
	245			250		255
Ser Leu Asn Pro	Asp Ala Ser Gly Ser Ser Cys Ser Leu Ala Arg Thr					
	260		265			270
Arg Ser Arg Glu Ser Cys Ala Ser Val Arg Arg Ala Ser Ser Ala Asp			280		285	
	275					
Asp Ile Glu Ala Met Arg Ala Gly Ala Leu Pro Leu Pro Pro Arg His			295		300	
	290					
Ala Ser Thr Gly Ala Met His Pro Leu Arg Ser Gly Leu Leu Asn Ser			310		315	320
	305					
Thr Ser Asp Ser Asp Leu Val Arg Tyr Arg Thr Ile Ser Lys Ile Pro			325		330	335
Gln Ile Thr Leu Asn Phe Val Asp Leu Lys Gly Asp Pro Phe Leu Ala						
	340		345			350
Ser Pro Thr Ser Asp Arg Glu Ile Ile Ala Pro Lys Ile Lys Glu Arg						
	355		360		365	
Thr His Asn Val Thr Glu Lys Val Thr Gln Val Leu Ser Leu Gly Ala			375		380	
	370					
Asp Val Leu Pro Glu Tyr Lys Leu Gln Ala Pro Arg Ile His Arg Trp			390		395	400
	385					
Thr Ile Leu His Tyr Ser Pro Phe Lys Ala Val Trp Asp Trp Leu Ile						
	405		410			415
Leu Leu Leu Val Ile Tyr Thr Ala Val Phe Thr Pro Tyr Ser Ala Ala						
	420		425		430	
Phe Leu Leu Lys Glu Thr Glu Asp Gly Ser Gln Ala Pro Asp Cys Gly			440		445	
	435					
Tyr Ala Cys Gln Pro Leu Ala Val Val Asp Leu Leu Val Asp Ile Met			455		460	
	450					
Phe Ile Val Asp Ile Leu Ile Asn Phe Arg Thr Thr Tyr Val Asn Ala			470		475	480
	465					
Asn Glu Glu Val Val Ser His Pro Gly Arg Ile Ala Val His Tyr Phe			485		490	495
Lys Gly Trp Phe Leu Ile Asp Met Val Ala Ala Ile Pro Phe Asp Leu						
	500		505		510	
Leu Ile Phe Gly Ser Gly Ser Glu Glu Leu Ile Gly Leu Leu Lys Thr						
	515		520		525	
Ala Arg Leu Leu Arg Leu Val Arg Val Ala Arg Lys Leu Asp Arg Tyr						

530					535					540					
Ser	Glu	Tyr	Gly	Ala	Ala	Val	Leu	Phe	Leu	Leu	Met	Cys	Thr	Phe	Ala
545					550					555					560
Leu	Ile	Ala	His	Trp	Leu	Ala	Cys	Ile	Trp	Tyr	Ala	Ile	Gly	Asn	Met
				565					570					575	
Glu	Gln	Pro	His	Met	Asp	Ser	His	Ile	Gly	Trp	Leu	His	Asn	Leu	Gly
			580					585					590		
Asp	Gln	Ile	Gly	Lys	Pro	Tyr	Asn	Ser	Ser	Gly	Leu	Gly	Gly	Pro	Ser
		595					600					605			
Ile	Lys	Asp	Lys	Tyr	Val	Thr	Ala	Leu	Tyr	Phe	Thr	Phe	Ser	Ser	Leu
	610					615					620				
Thr	Ser	Val	Gly	Phe	Gly	Asn	Val	Ser	Pro	Asn	Thr	Asn	Ser	Glu	Lys
625					630					635					640
Ile	Phe	Ser	Ile	Cys	Val	Met	Leu	Ile	Gly	Ser	Leu	Met	Tyr	Ala	Ser
				645					650					655	
Ile	Phe	Gly	Asn	Val	Ser	Ala	Ile	Ile	Gln	Arg	Leu	Tyr	Ser	Gly	Thr
			660					665					670		
Ala	Arg	Tyr	His	Thr	Gln	Met	Leu	Arg	Val	Arg	Glu	Phe	Ile	Arg	Phe
		675					680					685			
His	Gln	Ile	Pro	Asn	Pro	Leu	Arg	Gln	Arg	Leu	Glu	Glu	Tyr	Phe	Gln
	690					695					700				
His	Ala	Trp	Ser	Tyr	Thr	Asn	Gly	Ile	Asp	Met	Asn	Ala	Val	Leu	Lys
705					710					715					720
Gly	Phe	Pro	Glu	Cys	Leu	Gln	Ala	Asp	Ile	Cys	Leu	His	Leu	Asn	Arg
				725					730					735	
Ser	Leu	Leu	Gln	His	Cys	Lys	Pro	Phe	Arg	Gly	Ala	Thr	Lys	Gly	Cys
			740					745					750		
Leu	Arg	Ala	Leu	Ala	Met	Lys	Phe	Lys	Thr	Thr	His	Ala	Pro	Pro	Gly
		755					760					765			
Asp	Thr	Leu	Val	His	Ala	Gly	Asp	Leu	Leu	Thr	Ala	Leu	Tyr	Phe	Ile
	770					775					780				
Ser	Arg	Gly	Ser	Ile	Glu	Ile	Leu	Arg	Gly	Asp	Val	Val	Val	Ala	Ile
785					790					795					800
Leu	Gly	Lys	Asn	Asp	Ile	Phe	Gly	Glu	Pro	Leu	Asn	Leu	Tyr	Ala	Arg
			805						810					815	
Pro	Gly	Lys	Ser	Asn	Gly	Asp	Val	Arg	Ala	Leu	Thr	Tyr	Cys	Asp	Leu
			820					825					830		
His	Lys	Ile	His	Arg	Asp	Asp	Leu	Leu	Glu	Val	Leu	Asp	Met	Tyr	Pro

835					840					845					
Glu 850	Phe 850	Ser	Asp	His	Phe 855	Trp 855	Ser	Ser	Leu	Glu 860	Ile 860	Thr	Phe	Asn	Leu
Arg 865	Asp	Thr	Asn	Met 870	Ile 870	Pro	Gly	Ser	Pro	Ser 875	Ser	Ala	Glu	Leu	Glu 880
Ser	Gly	Phe	Asn 885	Arg 885	Gln	Arg	Lys	Arg	Lys 890	Leu	Ser	Phe	Arg	Arg 895	Arg
Thr	Asp	Lys	Asp 900	Thr	Glu	Gln	Pro	Gly 905	Glu	Val	Ser	Ala	Leu 910	Gly	Gln
Gly	Pro	Ala 915	Arg	Val	Gly	Pro	Gly 920	Pro	Ser	Cys	Arg	Gly 925	Gln	Pro	Gly
Gly 930	Pro	Trp	Gly	Glu	Ser	Pro 935	Ser	Ser	Gly	Pro	Ser 940	Ser	Pro	Glu	Ser
Ser 945	Glu	Asp	Glu	Gly	Pro 950	Gly	Arg	Ser	Ser	Ser 955	Pro	Leu	Arg	Leu	Val 960
Pro	Phe	Ser	Ser	Pro 965	Arg	Pro	Pro	Gly	Asp 970	Ser	Pro	Gly	Gly	Glu 975	Pro
Leu	Thr	Glu	Asp 980	Gly	Glu	Lys	Ser	Ser 985	Asp	Thr	Cys	Asn	Pro 990	Leu	Ser
Gly	Ala	Phe 995	Ser	Gly	Val	Ser	Asn 1000	Ile	Phe	Ser	Phe	Trp	Gly	Asp	Ser
Arg 1010	Gly	Arg	Gln	Tyr	Gln	Glu	Leu	Pro	Arg	Cys	Pro	Ala	Pro	Ala	Pro
Ser 1025	Leu	Leu	Asn	Ile 1030	Pro	Leu	Ser	Ser	Pro	Gly 1035	Arg	Arg	Ser	Arg	Gly 1040
Asp	Val	Glu	Ser	Arg 1045	Leu	Asp	Ala	Leu	Gln	Arg	Gln	Asp	Asn	Arg	Leu
Glu	Thr	Arg	Leu	Ser	Ala	Asp	Met	Ala	Thr	Val	Leu	Gln	Leu	Leu	Gln
Arg	Gln	Met 1075	Thr	Leu	Val	Pro	Pro	Ala	Tyr	Ser	Ala	Val	Thr	Thr	Pro
Gly 1090	Pro	Gly	Pro	Thr	Ser	Thr	Ser	Pro	Leu	Leu	Pro	Val	Gly	Pro	Val
Pro 1105	Thr	Leu	Thr	Leu	Asp	Ser	Leu	Ser	Gln	Val	Ser	Gln	Phe	Val	Ala
Phe	Glu	Glu	Leu	Pro	Ala	Gly	Ala	Pro	Glu	Leu	Pro	Gln	Asp	Gly	Pro
Thr	Arg	Arg	Leu	Ser	Leu	Pro	Gly	Gln	Leu	Gly	Ala	Leu	Thr	Ser	Gln

1140

1145

1150

Pro Leu His Arg His Gly Ser Asp Pro Gly Ser
 1155 1160

<210> 16
 <211> 962
 <212> PRT
 <213> RAT

<220>
 <223> eag 1

<400> 16

Met Thr Met Ala Gly Gly Arg Arg Gly Leu Val Ala Pro Gln Asn Thr
 1 5 10 15

Phe Leu Glu Asn Ile Val Arg Arg Ser Asn Asp Thr Asn Phe Val Leu
 20 25 30

Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
 35 40 45

Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
 50 55 60

Ser Ala Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Val
 65 70 75 80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
 85 90 95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
 100 105 110

Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
 115 120 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Lys Asp Asp Ser
 130 135 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
 145 150 155 160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
 165 170 175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
 180 185 190

Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Pro Pro His Ile
 195 200 205

Ile Leu His Tyr Cys Val Phe Lys Thr Thr Thr Trp Asp Trp Ile Ile
 210 215 220

Leu Gln Ile Cys Pro Lys Asp Asn Arg Ala Asp Ile Cys Val His Leu
 530 535 540
 Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp
 545 550 555 560
 Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln Thr Val His Cys Ala
 565 570 575
 Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Asp Val Asp Ser Leu Cys
 580 585 590
 Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val
 595 600 605
 Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu
 610 615 620
 Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys
 625 630 635 640
 Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe
 645 650 655
 Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr
 660 665 670
 Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg
 675 680 685
 Glu Glu Glu Glu Arg Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu
 690 695 700
 Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln
 705 710 715 720
 Lys Glu Ala Arg Leu Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp
 725 730 735
 Leu Asp Val Glu Lys Gly Asn Ala Leu Thr Asp His Thr Ser Ala Asn
 740 745 750
 His Ser Leu Val Lys Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala
 755 760 765
 Thr Pro Val Ser Phe Gln Ala Ala Ser Thr Ser Thr Val Ser Asp His
 770 775 780
 Ala Lys Leu His Ala Pro Gly Ser Glu Cys Leu Gly Pro Lys Ala Gly
 785 790 795 800
 Gly Gly Asp Pro Ala Lys Arg Lys Gly Trp Ala Arg Phe Lys Asp Ala
 805 810 815
 Cys Gly Lys Gly Glu Asp Trp Asn Lys Val Ser Lys Ala Glu Ser Met
 820 825 830

Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
 225 230 235 240
 Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
 245 250 255
 Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
 260 265 270
 Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
 275 280 285
 Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
 290 295 300
 Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Gly Ile Ser
 305 310 315 320
 Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg
 325 330 335
 Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu
 340 345 350
 Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala His Trp Met Ala Cys
 355 360 365
 Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys
 370 375 380
 Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu Ala Leu Asp Ile Gly
 385 390 395 400
 Thr Pro Tyr Gln Phe Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly
 405 410 415
 Pro Ser Lys Asn Ser Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr
 420 425 430
 Ser Leu Thr Ser Val Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile
 435 440 445
 Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr
 450 455 460
 Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala
 465 470 475 480
 Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser Val Arg Asp Phe Leu
 485 490 495
 Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr
 500 505 510
 Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile Asp Thr Lys Lys Val
 515 520 525